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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/827,102

04/05/2001

Robert H. Rines

9742

41840

7590

05/23/2005

RINES & RINES  
81 N. STATE STREET  
CONCORD, NH 03301

EXAMINER

PAK, JOHN D

ART UNIT

PAPER NUMBER

1616

DATE MAILED: 05/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/827,102

Applicant(s)

RINES ET AL.

Examiner

JOHN PAK

Art Unit

1616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 February 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-17 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,7-9,11,12,14,15 and 39-41 is/are rejected.
- 7) ☒ Claim(s) 2,4-6,10,13,16 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

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Claims 1-17 and 39-41 are pending in this application.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 39-41 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

New claims 39-41 recite "wherein the gel is translucent resembling ice translucency." The Examiner considers this feature to be new matter, which does not find adequate descriptive support from the originally filed disclosure. The following is a comparison of original disclosure and current claim language:

New Claim Language	Originally Filed Disclosure
gel is translucent resembling ice translucency	"ice crystal-like-appearing gel" "gel with ice-crystal-like appearance"

The originally filed disclosure fails to mention anything about resembling ice translucency. It is unclear from the originally filed disclosure what exactly is meant by “ice-crystal-like-appearing gel” or “ice-crystal-like appearance.” Ice crystals have too many “appearance” features that can lead to completely divergent characteristics.

It would not have been sufficiently clear to the skilled artisan how a gel (which is a semi-solid or a solid) is to appear like an ice crystal. Ice crystals come in many different sizes, shapes and translucency. It is not clear which ice crystal-like appearance was intended to be conveyed since the appearance can vary greatly. Ice can exist in a large number of different crystalline structures (10 or more different types of ice crystals are known), and different conditions for its formation lead to different size, shape and translucence. For example, ice crystals formed under certain conditions are white and not transparent (see the cited page from [www.answers.com/topic/ice](http://www.answers.com/topic/ice)). Additionally, ice crystals formed rapidly without good air circulation would be less translucent, and ice crystals formed from water with many impurities would be less translucent.

Therefore, the originally filed disclosure fails to convey how exactly the gel was to appear like an ice crystal. It follows then that ice translucency was not adequately conveyed, particularly since ice does not have a uniform translucency characteristic. The new claims therefore lack adequate descriptive support from the originally filed disclosure.

Claims 39-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The feature, "gel is translucent resembling ice translucency" is unclear and indefinite. Ice crystals come in many different sizes, shapes and translucency. Ice crystals formed under certain conditions are white and not transparent (see the cited page from [www.answers.com/topic/ice](http://www.answers.com/topic/ice)). Additionally, ice formed rapidly without good air circulation would be less translucent, and ice formed from water with many impurities would be less translucent (cloudy). Since ice does not have a well-defined translucency characteristic (ranging from very translucent to not translucent), one skilled in the art would not be able to determine the metes and bounds of the claim feature, "gel is translucent resembling ice translucency."

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Derwent abstract 1985-220400.

Derwent abstract 1985-220400 explicitly discloses copolymer of acrylamide and acrylic acid/acrylate that is formed as a gel by contacting the dry copolymer with an

aqueous solution of fertilizer. The gel is highly water absorptive. The fertilizer can be organic or inorganic, and is used as an aqueous solution. The gel is an effective fertilizer and plant growth enhancer.

It is recognized that the polymer in the claims is a polyacrylate and the prior art polymer is a copolymer of acrylamide and acrylate. However, it is the Examiner's position that the prior art copolymer, which contains polymeric acrylates, qualifies as a "polyacrylate." Polyacrylates can come in many different types, such as crosslinked polyacrylates and poly(alkyl)acrylates, which can have properties as diverse as copolymeric polyacrylates. Applicant has not further defined what type of polyacrylates fall within or outside the scope of the claims; and therefore, a broad but reasonable interpretation of polyacrylates includes polymeric substances such as here that contains poly-acrylate moieties.

It is also recognized that the claim feature, "polyacrylate polymer powder gelled in an aqueous plant nutrient solution with entrapped water-insoluble polyacrylate crystals dispersed therein" is not explicitly stated in verbatim or similar language by the cited reference. However, the dry polymer is contacted with an aqueous solution of a fertilizer in the cited reference. The copolymer has high water absorptive properties – so it is not dissolving in the aqueous fertilizer solution. Hence the prior art copolymer is water-insoluble. As for the "entrapped" feature, it must be recognized that a gel was formed in the prior art, wherein the aqueous solution is mixed with the water-absorbing

polymer. When the gel is obtained, the undissolved copolymer contains the absorbed water and vice versa. The copolymer particles (powders) are dispersed in the water and can be characterized as being "entrapped" since the gel form acts as a body that contains or entraps the gel mixture ingredients.

The claim feature, "water-releasing gel" is noted, but the copolymers here would necessarily possess such property by virtue of their copolymeric structure. The absorbed water from the aqueous fertilizer solution would be available for the plant to uptake. See for example, U.S. Patent No. 4,985,062, column 3, lines 15-17 and column 4, lines 58-65 for evidence that copolymers of acrylates necessarily possess such water releasing property. Note, said patent is cited to merely establish that the Examiner's interpretation of Derwent abstract 1985-220400 is correct. MPEP 2131.01.

The claims are thereby anticipated.

Claims 1, 3, 7, 9, 11, 12 and 14 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes (US 4,985,062).

Hughes explicitly discloses a powderized polyacrylate that is made into an aqueous gel by mixing with a commercial fertilizer solution, SOL-U-GRO, which contains nitrogen and  $P_2O_5$ . See column 12, lines 3-31, Example 15 on Table II, in view of Table I on column 11 (Example 7 and note (1)) and column 8, lines 35-50. Water release characteristic of aqueous gels is taught (column 4, lines 60-65).

Even though Hughes ultimately concludes that the fertilizer-added polyacrylate does not provide further fruit yield benefit (column 12, lines 62-65), this does not detract from the fact that the same exact aqueous gel of polyacrylates and fertilizer was specifically made and disclosed by Hughes. Applicant should note that this is an anticipation-based ground of rejection, not an obviousness-based ground of rejection. Therefore, applicant's argument directed to Hughes' ultimate conclusion to not necessarily incorporate plant nutrients (see pages 5-6 of applicant's 2/4/2005 reply) is not persuasive.

The feature "entrapped water-insoluble polyacrylate crystals dispersed therein" is noted. Hughes' gel is a mixture of polyacrylate, fertilizer ingredients and water. The polyacrylates absorb water, so it remains undissolved. When the gel is obtained, the undissolved polyacrylate powder is dispersed in water and can be characterized as being "entrapped" since the gel form acts as a body that contains or entraps the gel mixture ingredients.

Use of  $N_2$ - $P_2O_5$  chemical nutrients (see claims 7 and 14) by applicant is noted. Hughes explicitly used SOL-U-GRO, which contains nitrogen and  $P_2O_5$ . One skilled in the art would recognize that in the fertilizer art, " $N_2$ " means nitrogen, expressed in its stable elemental state, wherein the nitrogen is actually delivered by a variety of different nitrogen sources such as nitrates, urea, etc. See for example the cited pages from [www.pswdistrict.org/text/articles/NPKPartINitrogen.html](http://www.pswdistrict.org/text/articles/NPKPartINitrogen.html). MPEP 2131.01.



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Consequently, Hughes' disclosure specifically discloses the use of  $N_2-P_2O_5$  chemical nutrients.

The "readily spreadable" feature in claim 11 is noted. It is the Examiner's position that an aqueous gel would not be too difficult to spread – so it would be well within the scope of being "readily spreadable."

The claims are thereby anticipated.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9, 11-12 and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Derwent abstract 1985-220400 in view of Farm Chemicals Handbook '98.

Derwent abstract 1985-220400 discloses copolymer of acrylamide and acrylic acid/acrylate that is formed as a gel by contacting the dry copolymer with an aqueous solution of fertilizer. The gel is highly water absorptive. The fertilizer can be organic or inorganic (nitrate, phosphate, etc.), and is used as an aqueous solution. The gel is an effective fertilizer and plant growth enhancer.

Farm Chemicals Handbook '98 is cited to establish the well-known fact in the fertilizer field that nitrogen and phosphate (in the form of  $P_2O_5$ ) are standard fertilizer ingredients. See page B32, "Nitrogen Solutions" and page B33, "Phosphate." The nomenclature of " $N_2$ " as an expression or indication of nitrogen fertilizer would have been recognized by the ordinary skilled artisan in this field.

While Derwent abstract 1985-22040 does not expressly disclose the use of  $N_2 + P_2O_5$  in its aqueous solution of fertilizer that contacts the dry polyacrylate copolymer, such fertilizer ingredients would have been obvious to the ordinary skilled artisan. Nitrates (i.e. an example of  $N_2$  fertilizer) and phosphates are explicitly taught, and one having ordinary skill in the art would have known that  $P_2O_5$  is a readily available form of a phosphate fertilizer ingredient. As a result, the ordinary skilled artisan would have been motivated to combine  $N_2 + P_2O_5$  in the aqueous solution of fertilizer taught by Derwent abstract 1985-22040.

The claim feature of  $\frac{1}{4}$  teaspoon of polyacrylate polymer powder added to about 4 ounces of the plant nutrient solution is noted. Although the primary reference by Derwent abstract 1985-220400 does not explicitly disclose such proportion of polyacrylate powder to plant nutrient solution to obtain its plant nutrient-containing gel, the relative proportion of the gel in solid form to the volume of the aqueous plant nutrient solution would have been a matter of routine optimization for the ordinary skilled artisan. The gel in Derwent abstract 1985-220400 is taught to be a water-absorptive gel, so the

ordinary skilled artisan would have been motivated to adjust the volume of the aqueous plant nutrient solution relative to the amount of the gel in solid form, such as a powder for convenient mixing, depending on the particular need of the target plant. As Derwent abstract 1985-220400 explicitly teaches varying the amount of different plant nutrients depending on different plant types, one having ordinary skill in the art would have been further motivated to vary the amount of water in the aqueous fertilizer solution in order to obtain different levels of absorbed water and nutrients for different levels of water and nutrient needs in various plants.

Therefore, the claimed invention, as a whole, would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly disclosed or suggested by the combined teachings of the cited references.

Claims 2, 4-6, 10, 13 and 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to JOHN PAK whose telephone number is **(571)272-0620**. The Examiner can normally be reached on Monday to Friday from 8 AM to 4:30 PM.

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If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's SPE, Gary Kunz, can be reached on **(571)272-0887**.

The fax phone number for the organization where this application or proceeding is assigned is **(571)273-8300**.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JOHN PAK  
PRIMARY EXAMINER  
GROUP 1600